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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/932,427	09/17/1997	YOSHIO KITAMURA	1081.1055/JD	5306

7590 09/11/2003

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[REDACTED] EXAMINER

PORTKA, GARY J

ART UNIT	PAPER NUMBER
	2188

DATE MAILED: 09/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	08/932,427	KITAMURA, YOSHIO	
	Examiner	Art Unit	
	Gary J Portka	2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 23 June 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,3,7,13-15 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,3,7,13-15 and 17-20 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 23, 2003 has been entered. Claims 1, 7, 13-15, 17, and 18 have been amended, and claims 19 and 20 have been added by Applicant. Claims 1, 3, 7, 13-15, and 17-20 are pending.

Claim Objections

2. Claims are objected to because of the following informalities:
- a. In claim 1 at line 24 at "each of said logical volume", the word "volume" should be changed to "volumes". At lines 31-32, "said logical disk units" lacks proper antecedent basis.
 - b. In claim 7 at line 23 at "each of said logical volume", the word "volume" should be changed to "volumes". At line 29, "said logical disk units" lacks proper antecedent basis.
 - c. In claim 13 at line 25 "said logical disk units" lacks proper antecedent basis.
 - d. In claim 14 at line 18 at "each of said logical volume", the word "volume" should be changed to "volumes". At lines 19-20, "and said designated logical

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volume" does not make sense in the context (is it to be considered part of the memory or the table?). At line 21 after abnormal, it is suggest to insert a comma.

At line 23, "umbers" should be changed to "numbers". At lines 25-26, "said logical disk units" lacks proper antecedent basis.

e. In claim 15 at line 16 at "each of said logical volume", the word "volume" should be changed to "volumes". At line 22, "said logical disk units" lacks proper antecedent basis.

f. In claim 19 at line 11 "said status information of logical volume" lacks proper antecedent basis. At lines 13-14, "when a plurality of physical disk units storing copies of said designated logical volume" does not make sense in the context, should the words "are normal" be added after this? At line 15, perhaps "indicates" should be changed to "indicated". At lines 15-16, "said logical disk units" lacks proper antecedent basis.

g. In claim 20 at line 4 at "each of said logical volume", the word "volume" should be changed to "volumes". At line 12, "said logical disk units" lacks proper antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claims 1, 3, 7, 13-15, and 17-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Each independent claim recites in the last, or in the last two paragraphs (for example, in the last four lines of

claim 1) two times where the status of the physical disk units (normal/abnormal) is determined from the status information of the logical volume (or, apparently two times, see objections above to "said logical disk units"). However, earlier in each claim it is stated that there is status information for the logical volume plus status information for the physical disk unit. Since the logical volume status is being recited as determining the status of the physical disk units, it is unclear how the disk unit status would be used, and whether it is actually is a separate status. Note also that "said status information" (generally in the last 5 words of each independent claim) lacks proper antecedent basis, and is thus unclear, since there are two status informations recited previously in each claim.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3, 7, 13-15, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 60-205641, in view of JP 3-253933 (pages and lines numbers hereinbelow reference the supplied English translations).

6. As to claims 1, 7, 13-15, and 19-20, JP 60-205641 discloses a RAID apparatus (since any multiple disk system with multiple volumes holding identical data may be considered RAID) and control method comprising:

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- a. plurality of disk units storing a plurality of copies of each of data of logical volumes (see page 2 lines 19-22 and page 3 lines 6-11 and 24-27), and disk controller for accessing the disk units at the logical volumes (required to control disks, and including main memory, CPU, and dual volume control program, see page 3 line 27 to page 4 line 2, and page 4 lines 20-22);
- b. the disk controller including a memory storing number of request operations for each disk, and control means comparing these and selecting the single disk having the least, and thus outputting a request to the single minimum waiting disk unit based upon the comparison, where the number is incremented/decremented for each new request/completion (see (see page 3 line 27 to page 4 line 13); , *Page 5 lines 5.-19*
- c. wherein the disk units perform operations in a queued order (see queues of Figs. 2 and 3);
- d. wherein the memory stores the recited table indicating correspondence between disks and logical volumes and selection of the disk on which a logical volume is allocated by comparison of operation numbers (the sections cited above disclose the correspondence of disks via the physical volumes of the multiple volume).

JP 60-205641 does not disclose that the status of each disk is stored in a table, to avoid selecting an abnormal disk as recited. However, JP 3-253933 discloses a table storing various states of disks, including if a write is in progress, and if in normal working order (see page 8 lines 24-27, page 10 lines 21-27, and page 11 line 25 to page 12 line

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6). Thus it teaches an easy method for accounting for and avoiding the attempted use of a disk that is in an abnormal status, and this advantage would have motivated an artisan to implement it ~~is~~ a system such as in JP 60-205641. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to store status of each disk in a table, because this was a known means of preventing the using of a disk in an abnormal status.

7. As to claim 3, JP 60-205641 discloses channel adapter, device adapter, and resource manager to the extent that these elements are recited, as described within the sections cited above.

8. As to claims 17 and 18, the status of disks disclosed in JP 3-253933 as described above may be considered part of either of both of the recited tables to the extent recited, all further limitations being disclosed in the implementation of the abnormal status of a disk as described above.

Response to Arguments

9. Applicant's arguments filed June 23, 2003 have been fully considered but they are moot in view of the new grounds of rejection.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary J Portka whose telephone number is (703) 305-4033. The examiner can normally be reached on M-F 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (703) 306-2903. The fax phone

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number for the organization where this application or proceeding is assigned is (703)
872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-3900.

Gary J Portka
Primary Examiner
Art Unit 2188

September 8, 2003

